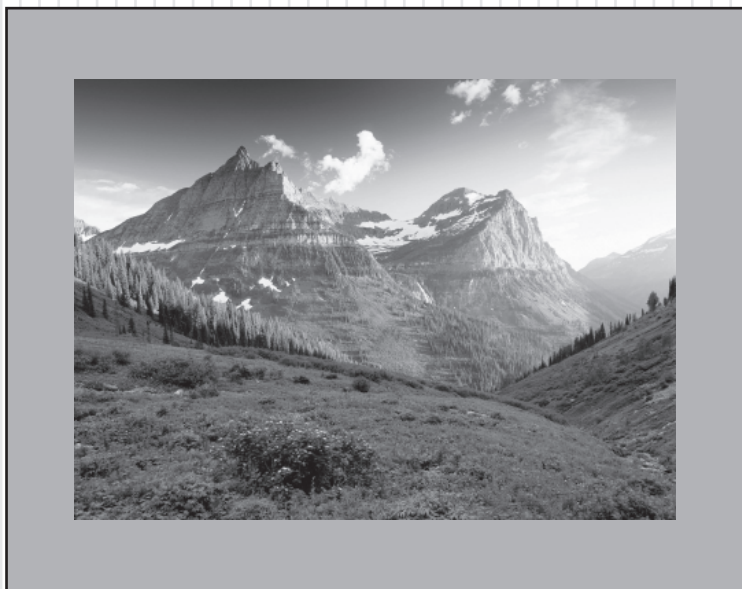


*Montana*  
*Comprehensive Assessment*  
*System (MontCAS, Phase 2)*  
*Criterion-Referenced Test (CRT)*

COMMON CONSTRUCTED-RESPONSE ITEM RELEASE  
MATHEMATICS, GRADE 6

2007



OFFICE OF PUBLIC INSTRUCTION

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Printed in the United States of America.

# Mathematics

## Session 1 (Calculator)

**You may use a calculator during this session.**

25. Andrew finds a 22-ounce box of cereal that costs \$1.63. The same cereal is also available in a 40-ounce box for \$3.04.
- a. If Andrew buys the 22-ounce box of cereal, how much will he be paying per ounce? Show or explain how you found your answer.
  - b. Will Andrew get a better deal if he buys the 40-ounce box of cereal? Show or explain how you found your answer.

## Scoring Guide

Score	Description
4	4 points
3	3 points
2	2 points
1	1 point
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

### Scoring Notes

Part a: 2 points for correct answer, **\$0.0741**, with correct explanation or work shown  
OR  
1 point for correct answer with incomplete or no explanation or work shown  
or  
for correct strategy that may have one computational error

Part b: 2 points for correct strategy with correct work shown to support conclusion  
OR  
1 point for correct work shown to support conclusion  
or  
for correct strategy that may have one computational error

### Sample Responses:

Part a:  $\$1.63 \div 22 = \$0.0741$

Part b:  $\$3.04 \div 40 = \$0.076$ ;  $\$0.076 > \$0.0741$  so Andrew will not get the better deal by buying the 40-ounce box of cereal.

OR

$40 \times \$0.0741 = \$2.96$ ;  $\$3.04 > \$2.96$  so Andrew will get the better deal by buying the 22-ounce box of cereal.

**Note:** Do not award a 4 score if a response has the correct strategy and work to support the correct conclusion (22-ounce box is the better deal) but does not have a conclusion stated, otherwise do not penalize.

## Score Point 4

### Sample 1

25. Andrew finds a 22-ounce box of cereal that costs \$1.63. The same cereal is also available in a 40-ounce box for \$3.04.
- If Andrew buys the 22-ounce box of cereal, how much will he be paying per ounce? Show or explain how you found your answer.
  - Will Andrew get a better deal if he buys the 40-ounce box of cereal? Show or explain how you found your answer.

(A)

$$\begin{array}{r} 1.63 \\ 22 \overline{) 1.63} \\ \underline{220} \phantom{0} \\ 30 \phantom{0} \\ \underline{220} \phantom{0} \\ 80 \phantom{0} \\ \underline{88} \phantom{0} \\ 20 \phantom{0} \\ \underline{22} \phantom{0} \\ 0 \end{array}$$

$0.07 \overline{) 1.54} = 0.07/oz$

Andrew will pay \$0.07 per ounce if he gets the 22oz box for \$1.63

(B)

$$\begin{array}{r} 3.04 \\ 40 \overline{) 3.04} \\ \underline{280} \phantom{0} \\ 240 \phantom{0} \\ \underline{240} \phantom{0} \\ 0 \end{array}$$

$0.07 \overline{) 0.76} = 0.08$

No, Andrew would not get a better deal if he buys the 40oz box of cereal. He would get a better deal if he bought the 20oz box of cereal because the 20oz box costs 0.07/oz. and the 40 oz box costs 0.08/oz.

Score Point 4

Sample 2

25. Andrew finds a 22-ounce box of cereal that costs \$1.63. The same cereal is also available in a 40-ounce box for \$3.04.
- If Andrew buys the 22-ounce box of cereal, how much will he be paying per ounce? Show or explain how you found your answer.
  - Will Andrew get a better deal if he buys the 40-ounce box of cereal? Show or explain how you found your answer.

A.

He will be paying about 7¢ and is paying  $\$0.07409$  for each ounce.

$$\begin{array}{r} 0.07409 \\ 22 \overline{) 1.63} \\ \underline{154} \phantom{00} \\ 90 \phantom{00} \\ \underline{88} \phantom{00} \\ 20 \phantom{00} \\ \underline{0} \phantom{00} \\ 200 \phantom{00} \\ \underline{198} \phantom{00} \\ 20 \end{array}$$

$$\begin{array}{r} 22 \\ 154 \\ \hline 22 \\ 88 \\ \hline 22 \\ 198 \\ \hline \end{array}$$

B.

No, because if he buys the 40 ounce he is paying more for each ounce. If he buys the 22 ounce it is cheaper for each ounce.

$$\begin{array}{r} 0.076 \\ 40 \overline{) 3.04} \\ \underline{280} \phantom{00} \\ 240 \phantom{00} \\ \underline{240} \phantom{00} \\ 0 \end{array}$$

$$\begin{array}{r} 0.07409 \\ 22 \overline{) 1.63} \\ \underline{154} \phantom{00} \\ 90 \phantom{00} \\ \underline{88} \phantom{00} \\ 20 \phantom{00} \\ \underline{0} \phantom{00} \\ 200 \phantom{00} \\ \underline{198} \phantom{00} \\ 20 \end{array}$$

### Score Point 3

#### Sample 1

25. Andrew finds a 22-ounce box of cereal that costs \$1.63. The same cereal is also available in a 40-ounce box for \$3.04.
- If Andrew buys the 22-ounce box of cereal, how much will he be paying per ounce? Show or explain how you found your answer.
  - Will Andrew get a better deal if he buys the 40-ounce box of cereal? Show or explain how you found your answer.

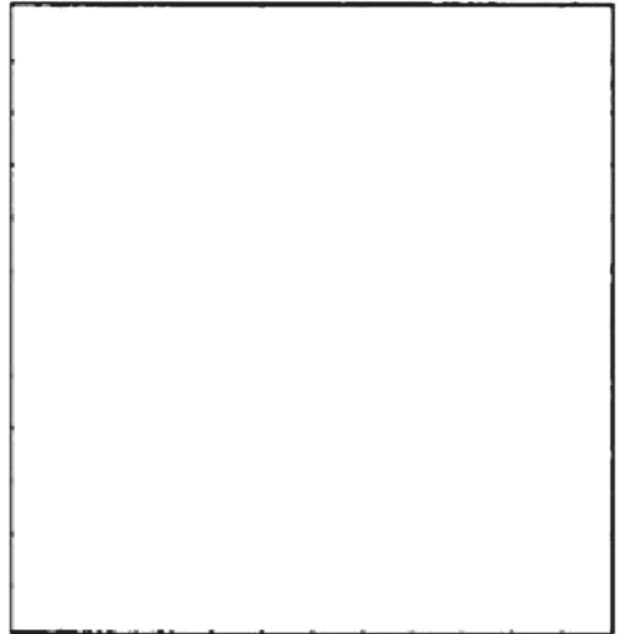
$$\begin{array}{r} 74 \\ 22 \overline{) 163} \end{array}$$

7¢ per ounce

Andrew will get a better deal if he buys the 40-ounce box of cereal

$$\begin{array}{r} 76 \\ 40 \overline{) 304} \end{array}$$

$$\begin{array}{r} .074 \\ .076 \end{array}$$



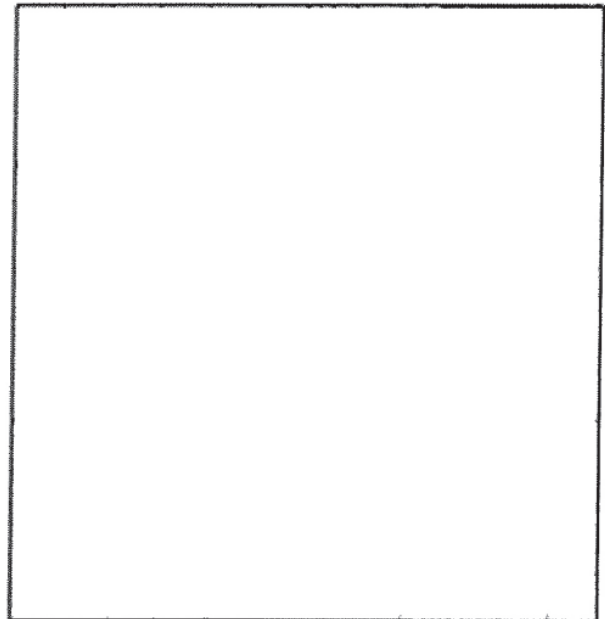
### Score Point 3

#### Sample 2

25. Andrew finds a 22-ounce box of cereal that costs \$1.63. The same cereal is also available in a 40-ounce box for \$3.04.
- If Andrew buys the 22-ounce box of cereal, how much will he be paying per ounce? Show or explain how you found your answer.
  - Will Andrew get a better deal if he buys the 40-ounce box of cereal? Show or explain how you found your answer.

a.) 7¢ because  $1.63 \div 22 = 0.07$

B.) 8¢ because  $3.04 \div 40 = 7.6$  You round it up





## Score Point 2

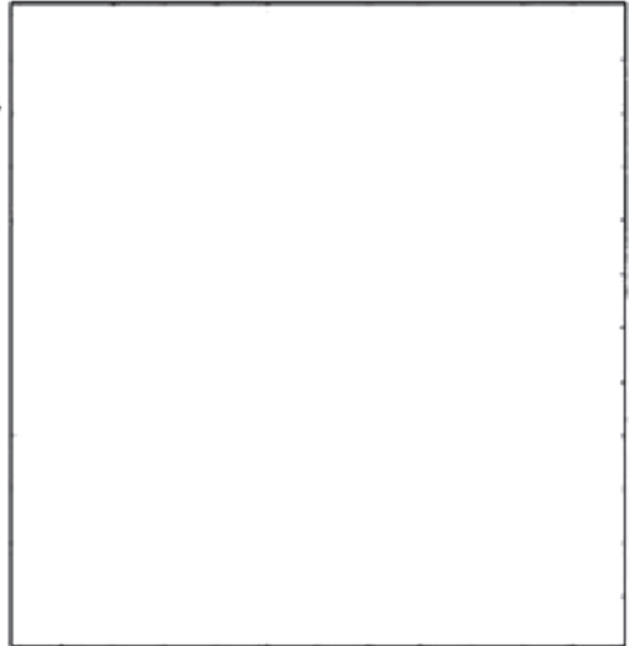
### Sample 1

25. Andrew finds a 22-ounce box of cereal that costs \$1.63. The same cereal is also available in a 40-ounce box for \$3.04.
- If Andrew buys the 22-ounce box of cereal, how much will he be paying per ounce? Show or explain how you found your answer.
  - Will Andrew get a better deal if he buys the 40-ounce box of cereal? Show or explain how you found your answer.

(34) A. 7¢ per ounce.  
you take  $\$1.63 \div 22$

(34) B. 8¢ per ounce

you take  $\$3.04 \div 22$   
and round off the answer  
7.6 to 8.



## Score Point 2

### Sample 2

25. Andrew finds a 22-ounce box of cereal that costs \$1.63. The same cereal is also available in a 40-ounce box for \$3.04.

- If Andrew buys the 22-ounce box of cereal, how much will he be paying per ounce? Show or explain how you found your answer.
- Will Andrew get a better deal if he buys the 40-ounce box of cereal? Show or explain how you found your answer.

A.

$$\begin{array}{r} 7 \text{ r } 9 \\ 22 \overline{) 1.63} \\ \underline{154} \phantom{0} \\ 9 \phantom{0} \end{array}$$

7.9 per ounce

I took the \$1.63 and divided it by the # of ounces and got 7. then there was a remainder of 9 so I got 7.9 per ounce.

B.

$$\begin{array}{r} 7 \\ 40 \overline{) 3.04} \\ \underline{280} \phantom{0} \\ 24 \phantom{0} \end{array}$$

7 per ounce

I took the \$3.04 and ÷ it by the # of the ounces and got 7.

Yes he got a better deal

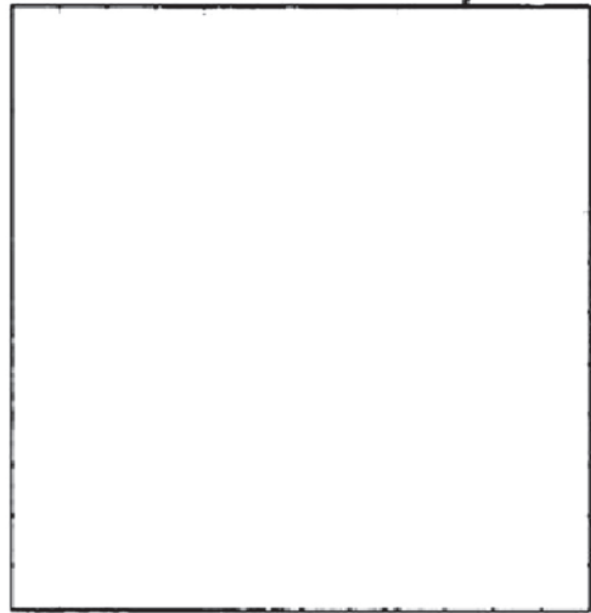
## Score Point 1

### Sample 1

25. Andrew finds a 22-ounce box of cereal that costs \$1.63. The same cereal is also available in a 40-ounce box for \$3.04.
- If Andrew buys the 22-ounce box of cereal, how much will he be paying per ounce? Show or explain how you found your answer.
  - Will Andrew get a better deal if he buys the 40-ounce box of cereal? Show or explain how you found your answer.

A).074

B.) he would be paying more, though he is paying more it is because he's buying a for less money.



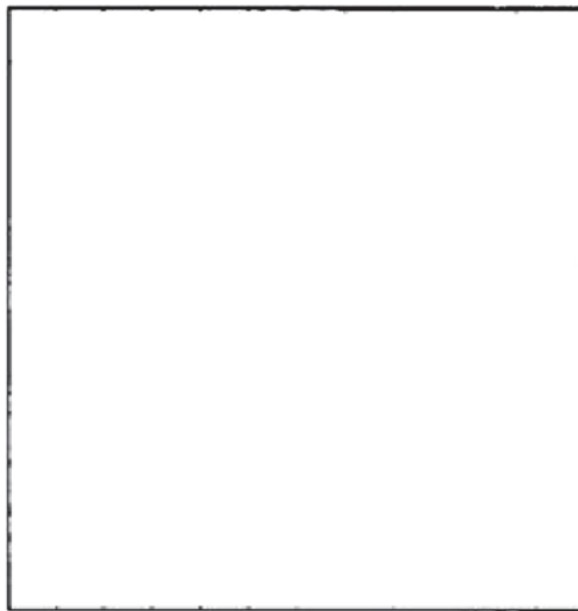
## Score Point 1

### Sample 2

25. Andrew finds a 22-ounce box of cereal that costs \$1.63. The same cereal is also available in a 40-ounce box for \$3.04.
- If Andrew buys the 22-ounce box of cereal, how much will he be paying per ounce? Show or explain how you found your answer.
  - Will Andrew get a better deal if he buys the 40-ounce box of cereal? Show or explain how you found your answer.

a. He would be spending about \$7.

B. No because It is not even a half over 22 ounces so therefore It would not be a better deal.



Score Point 0

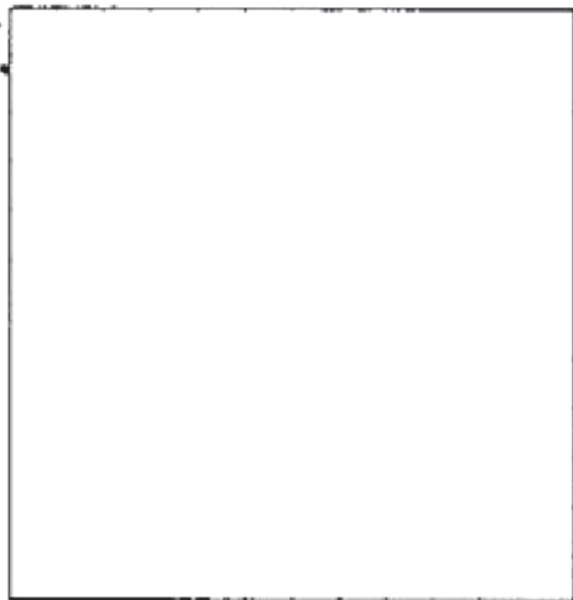
Sample 1

25. Andrew finds a 22-ounce box of cereal that costs \$1.63. The same cereal is also available in a 40-ounce box for \$3.04.
- If Andrew buys the 22-ounce box of cereal, how much will he be paying per ounce? Show or explain how you found your answer.
  - Will Andrew get a better deal if he buys the 40-ounce box of cereal? Show or explain how you found your answer.

A. 13 cents. 22 divided by \$1.63 = 13.496932

B. Yes. 40 divided by \$3.04 = 13.157894 cents,  
and 22 divided by \$1.63 = 13.496932 cents.

13.157894 is less than 13.496932 so he gets a better deal on the 40 ounce box.




Score Point 0

Sample 2

25. Andrew finds a 22-ounce box of cereal that costs \$1.63. The same cereal is also available in a 40-ounce box for \$3.04.
- If Andrew buys the 22-ounce box of cereal, how much will he be paying per ounce? Show or explain how you found your answer.
  - Will Andrew get a better deal if he buys the 40-ounce box of cereal? Show or explain how you found your answer.

A.



22-ounce = \$1.63  
== how many ounces? 22

40-ounce = \$3.04  
== how many ounces?  
40

And the 22-ounce is the best deal  
cause it's less  
money.

B.



# Mathematics

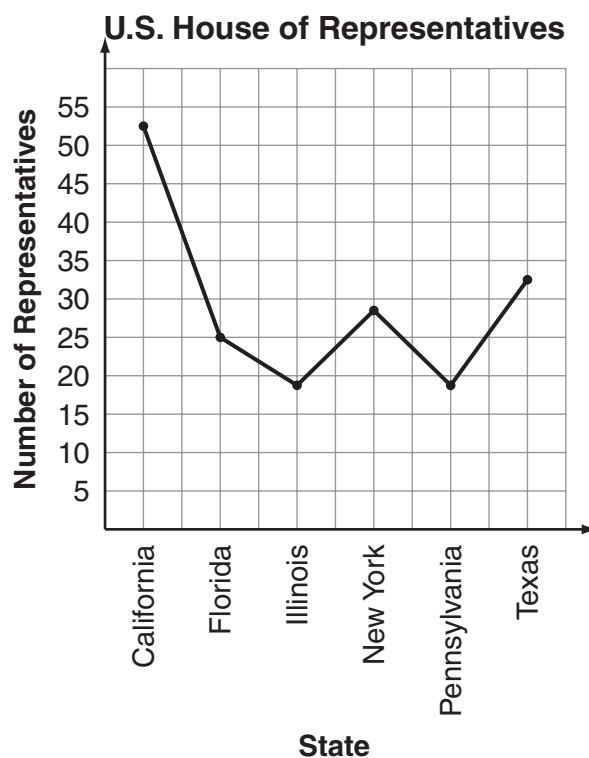
## Session 3 (No Calculator)

**You may NOT use a calculator during this session.**

68. The table below shows the six states with the most members in the U.S. House of Representatives.

State	Number of Representatives
California	53
Florida	25
Illinois	19
New York	29
Pennsylvania	19
Texas	32

- Create a bar graph showing the number of representatives from each state listed in the table. Be sure to completely label both axes.
- Franco made a line graph of the data. His graph is shown below.



Give a complete explanation as to why Franco's graph is not an appropriate representation of the data in the table.

## Scoring Guide

Score	Description
4	6 points
3	4 – 5 points
2	2 – 3 points
1	1 point
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

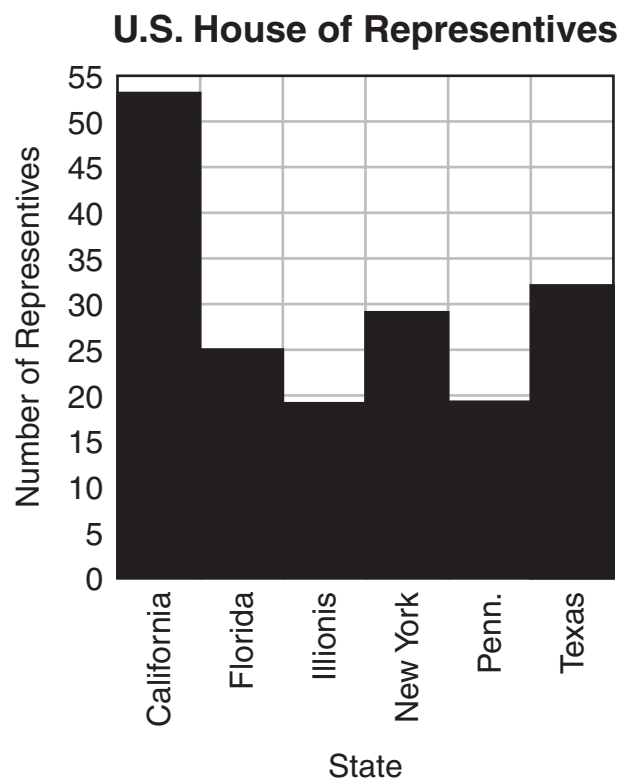
## Scoring Notes

- Part a: (5 points maximum)
- 2 points for correctly labeled axes
  - AND
  - 1 point for appropriately scaled Number of Representatives axis
  - AND
  - 2 points for 6 correct bars
  - OR
  - 1 point for 5 correct bars
- Part b: 1 point for correct explanation



## Sample Responses:

Part a:



Part b:

Accept any correct explanation. An example is: A line graph is not an appropriate graph. A line graph is used to show changes over time. The data shown in the table is not describing a change over time.

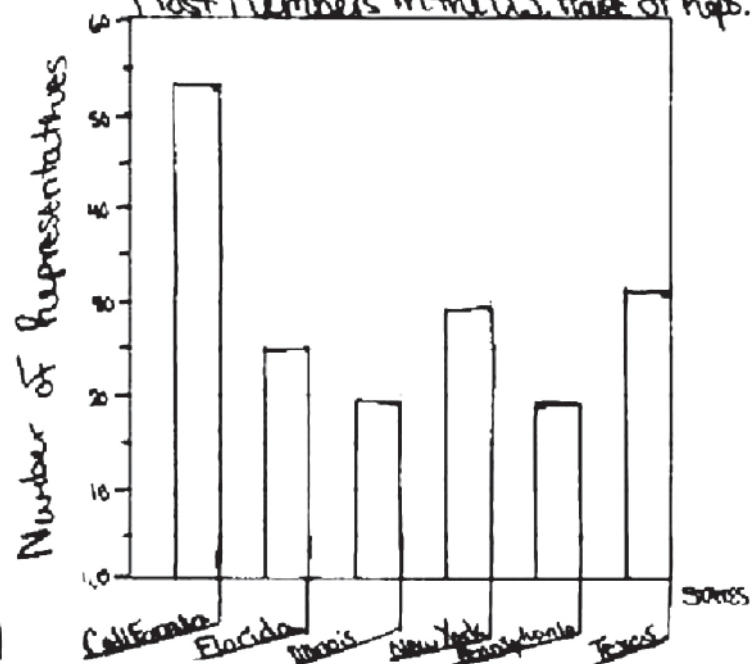
### Notes:

- If the number scale shows a lack of understanding of graphing, e.g., scaling the axis with even intervals between the data points, assign 0 points for part a.
- If the graph in part a is not a bar graph, assign 0 points for part a.

B. Francos graph is not appropriate for this data because it is not show a change over time. He needed a bar graph to show differences.

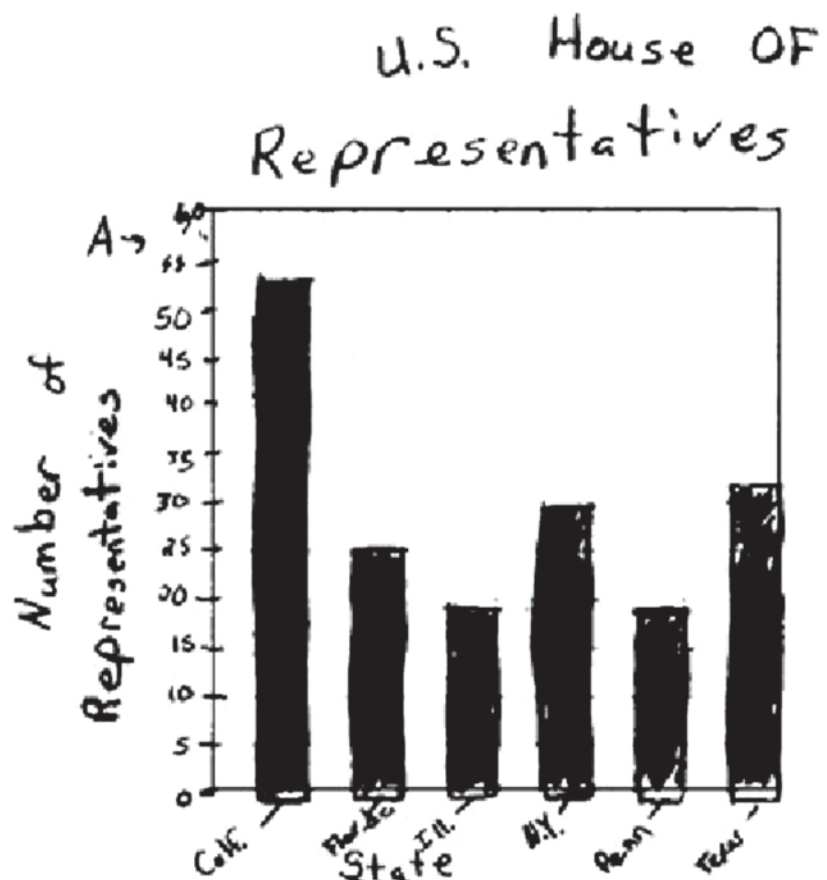


A. Six States With The Most Members in the U.S. House of Reps.



B. Franco's graph is not an appropriate representation because a line graph is used to show progress

over a period of time. A bar graph is used to find out how many. That is why Franco's graph is not appropriate for a presentation.

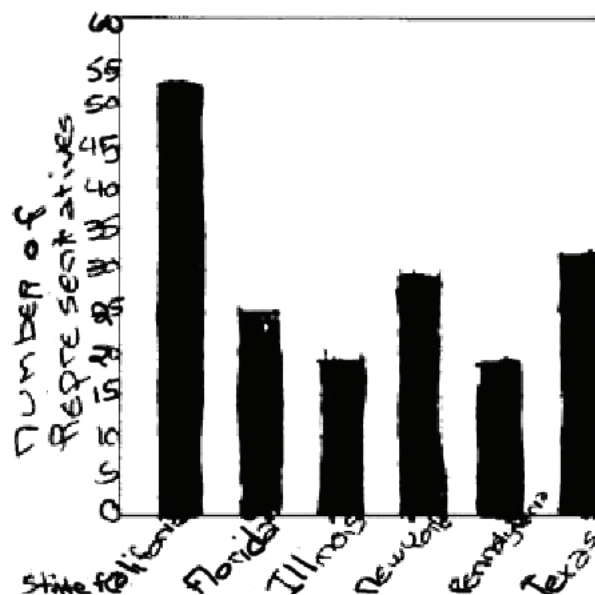


Score Point 3

Sample 1

Franco's graph is not a bar graph.

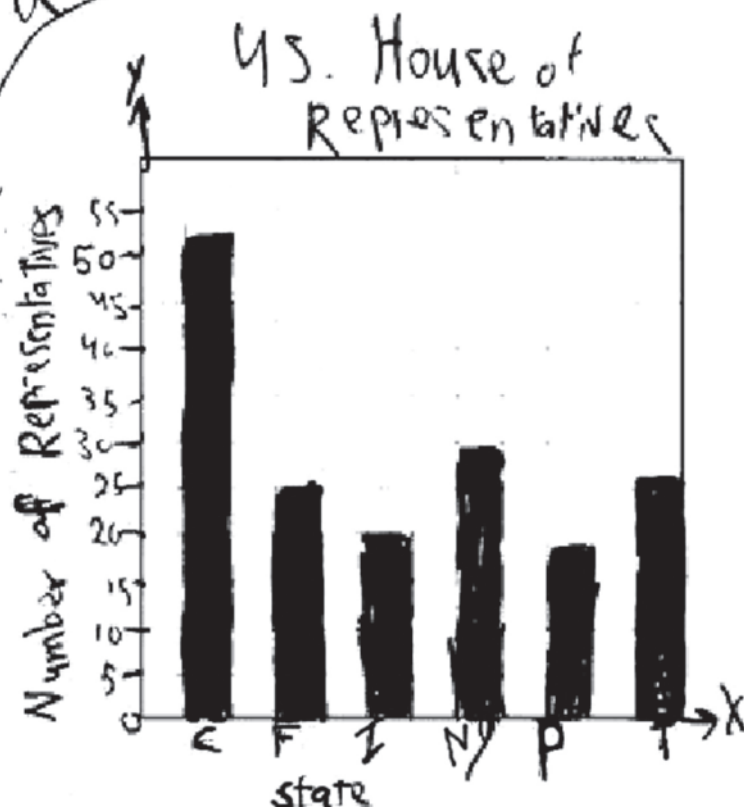
U.S. House  
of  
Representatives



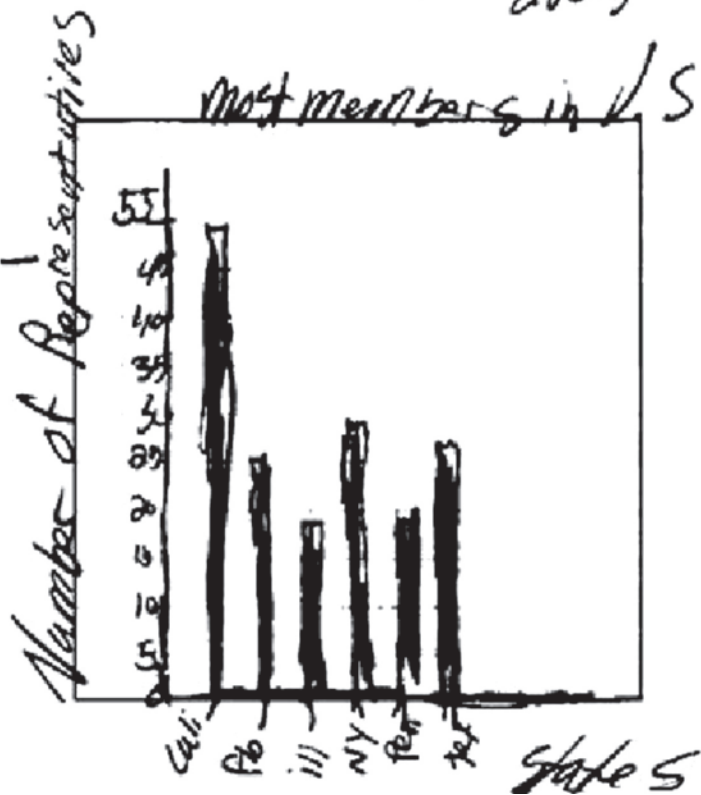
A line graph is used to show change over a period of time. If it show change in the number of one state over the number years, then it would be okay to use, otherwise he should have used a bar graph.

Key

C = California  
 F = Florida  
 I = Illinois  
 NY = New York  
 P = Pennsylvania  
 T = Texas

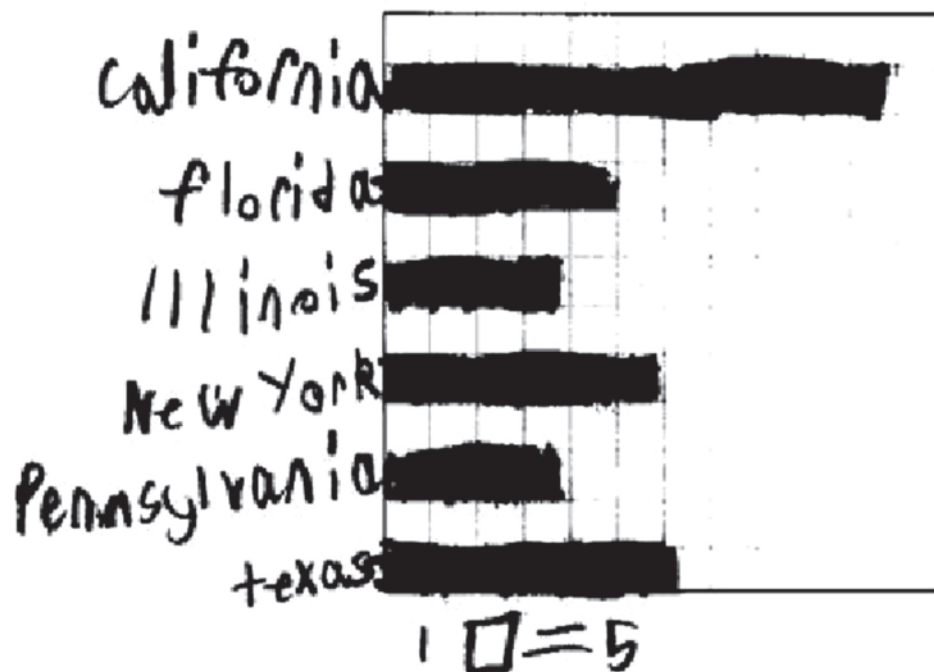


b. because the line graph is different then  
 this graph people might not know what does  
 this mean because its  
 in a different way  
 then the line graph a. -



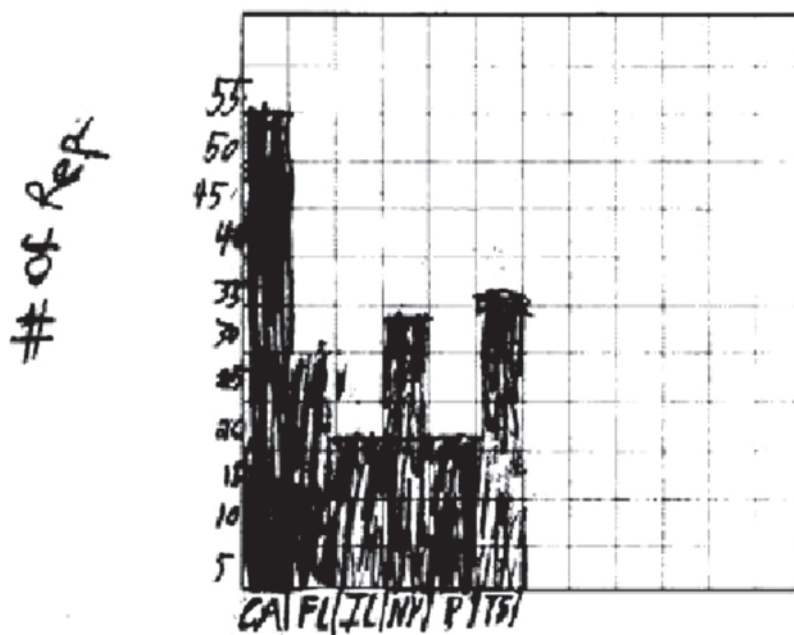
(b.) It would be incorrect because that's a graph where you would track number of people.

(A.) U.S. House of Representatives



Score Point 1

Sample 1

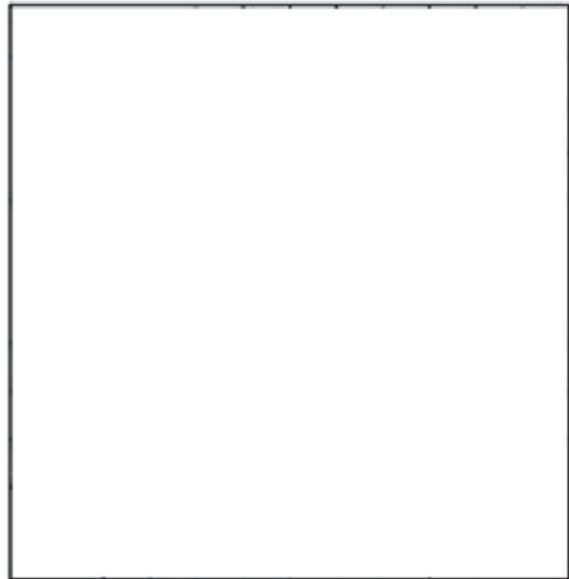




Score Point 1

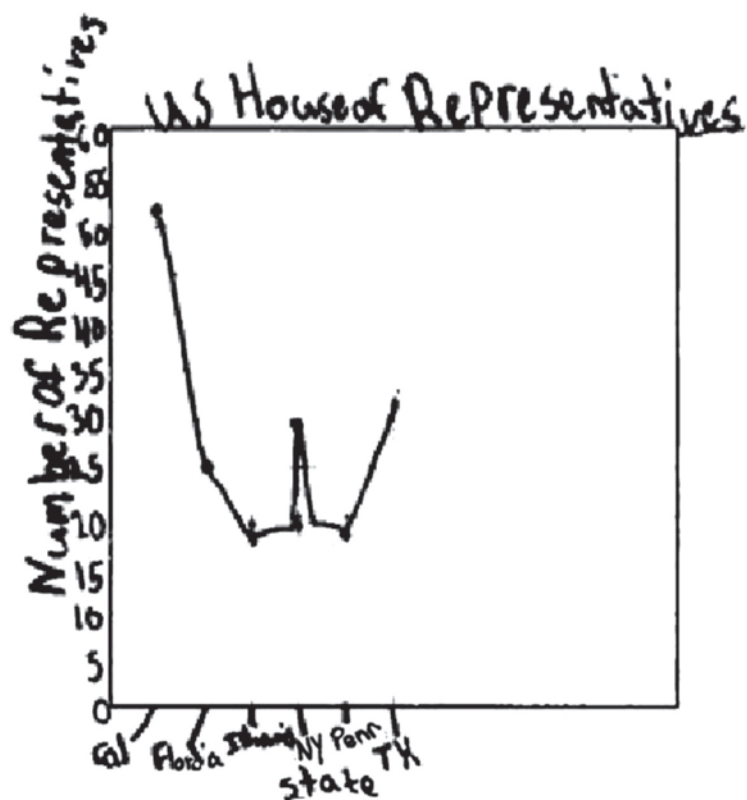
Sample 2

This graph isn't appropriate because a line graph should show things over time and a bar graph should have been used.



Score Point 0

Sample 1



B, It isn't because it isn't exactly the same. It is somewhat off. But just a little.

